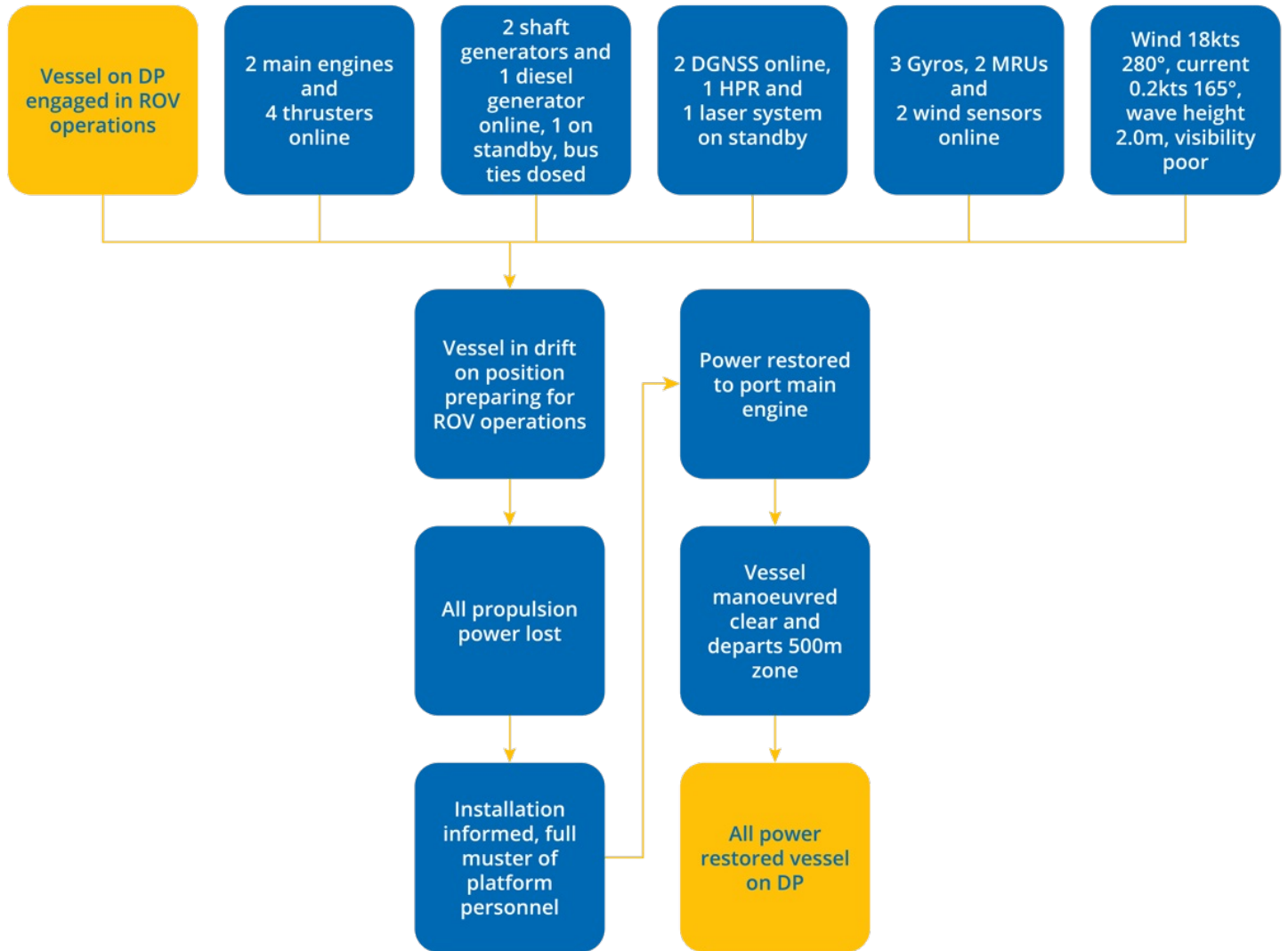


## Incorrect wiring causes loss of all propulsion

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The main cause of the incident was found to be the improper wiring of the main and backup power supplies.



## Comments

Subsequent investigation identified the following:

- Through extensive evaluation by numerous technicians, the main cause of the incident was found to be the improper wiring of the main and backup power supplies. Three engines were electrically connected through the DC40 main power supply. This enabled an erroneous shut down signal to be sent to three engines simultaneously.
- **What were the causes of the incident?** There was a fault in the wiring configuration of the vessel's main engine 24VDC supply. The wiring for the main power supply and the backup power supply was reversed which tied the two main engines to

the same main power supply, thereby reducing vessel redundancy. Furthermore, a ground fault was identified on the main 24V supply to the main engines. Subsequent testing revealed the diesel control units (DCU) responded differently when subjected to grounding tests; the port main engine would continue running while the starboard main engine would shut down.

- **What lessons were learnt?** This misconfiguration, and subsequent loss of DP redundancy, was unknown to the crew. The wiring of the vessel's main engine 24VDC supply had been completed prior to the current management company assuming management of the vessel. This incident further stresses the importance of a maintenance programme and complete maintenance records.

## Actions

Several changes were made to the vessel's systems such as the replacement of the governor, DC40 battery supply and the starboard DCU and all was tested to satisfaction. To ensure the matter has been completely rectified, the vessel was subjected to a full five-year FMEA.

## Considerations

This incident stresses the importance for a good initial FMEA, the tracking of modifications and ensuring documentation is up to date, plus the importance of proving redundancy groups on a frequent basis.

*The case studies and observations above have been compiled from information received by IMCA. All vessel, client, and operational data has been removed from the narrative to ensure anonymity. Case studies are not intended as guidance on the safe conduct of operations, but rather to assist vessel managers, DP operators, and technical crew.*

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